

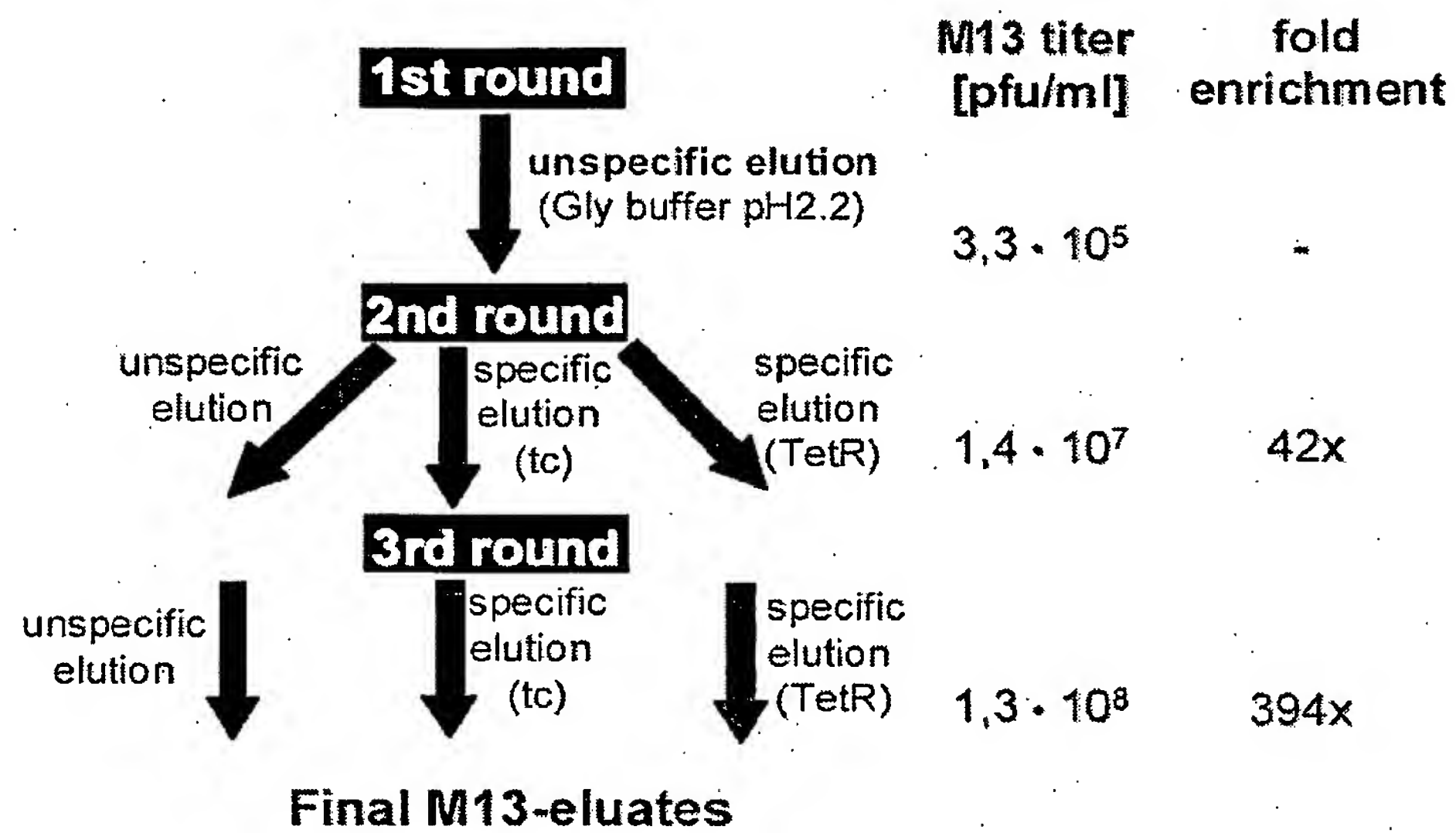
Figure 1: Experimental procedure for the *in vitro* selection.

Figure 2: Example for *in vitro* selected sequences.

- Unspecific elution (Gly buffer, pH 2.2)

pep1	Trp	-	His	-	Gly	-	Ala	-	Ile	-	Leu	-	Gly	-	Ser	-	Ala	-	Arg	-	Ala	-	Gln
pep2	Leu	-	Pro	-	Ser	-	Tyr	-	Met	-	Leu	-	His	-	Leu	-	Trp	-	Ser	-	Pro	-	His
pep3	Ala	-	His	-	Tyr	-	Ser	-	Leu	-	Tyr	-	Trp	-	Pro	-	Met	-	Ala	-	Thr	-	Phe
pep4	Tyr	-	His	-	Asn	-	Leu	-	Tyr	-	Gly	-	Leu	-	Pro	-	Leu	-	Gly	-	Pro	-	Trp
pep5	Trp	-	His	-	Gln	-	Thr	-	Tyr	-	Thr	-	Ser	-	Ser	-	Leu	-	Trp	-	Glu	-	Ser

- Specific elution (TetR, 4 μ M)

pep1	Trp	-	Thr	-	Trp	-	Asn	-	Ala	-	Tyr	-	Ala	-	Phe	-	Ala	-	Ala	-	Pro	-	Ser
pep2	Trp	-	His	-	Ser	-	Ser	-	Phe	-	Asn	-	Met	-	Phe	-	Ala	-	Tyr	-	Pro	-	Met
pep3	Trp	-	His	-	Leu	-	Pro	-	Leu	-	Ser	-	Trp	-	Thr	-	Thr	-	Arg	-	Leu	-	Pro
pep4	Trp	-	His	-	Thr	-	Pro	-	Ile	-	Ser	-	Leu	-	Leu	-	Lys	-	Gln	-	Val	-	Arg
pep5	Trp	-	His	-	Trp	-	Thr	-	Phe	-	Ser	-	Ser	-	Pro	-	Leu	-	Met	-	Gln	-	Thr

Figure 3: Characterisation of TetR-phage binding by ELISA.

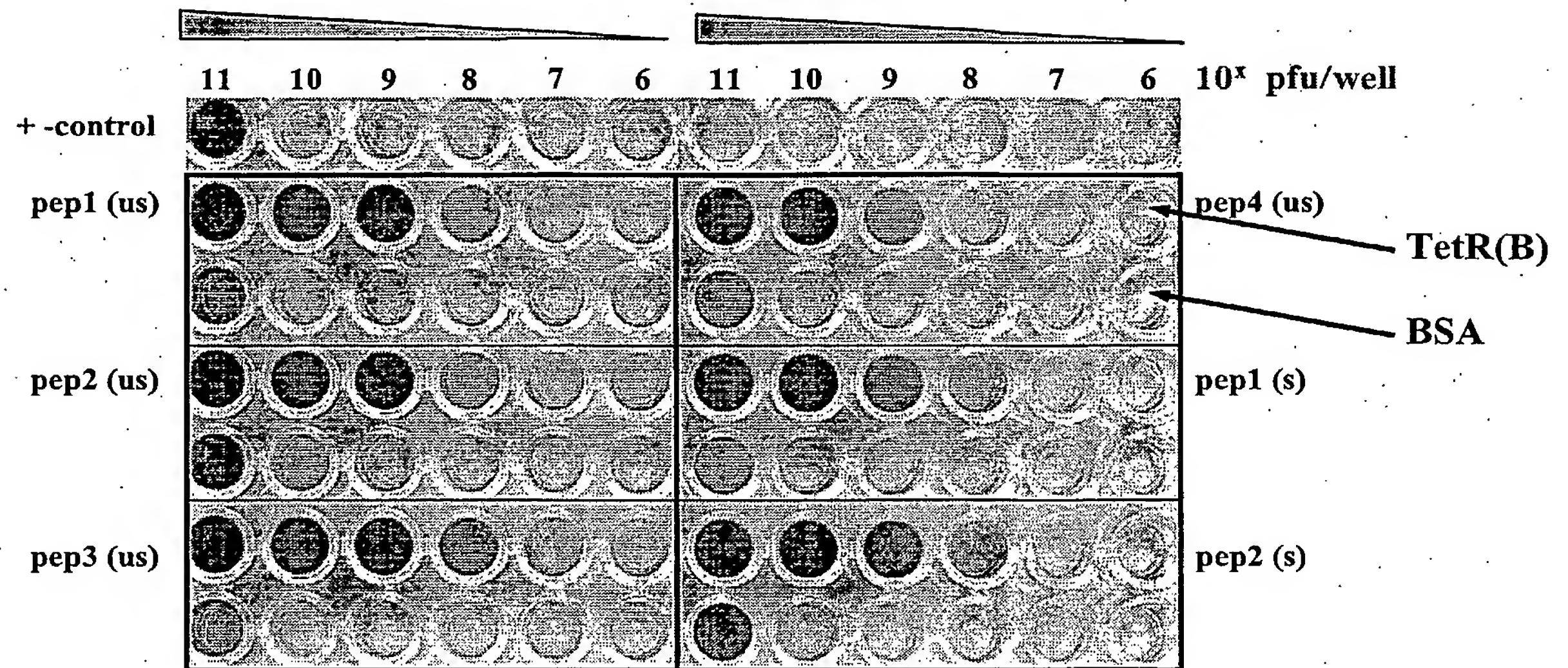
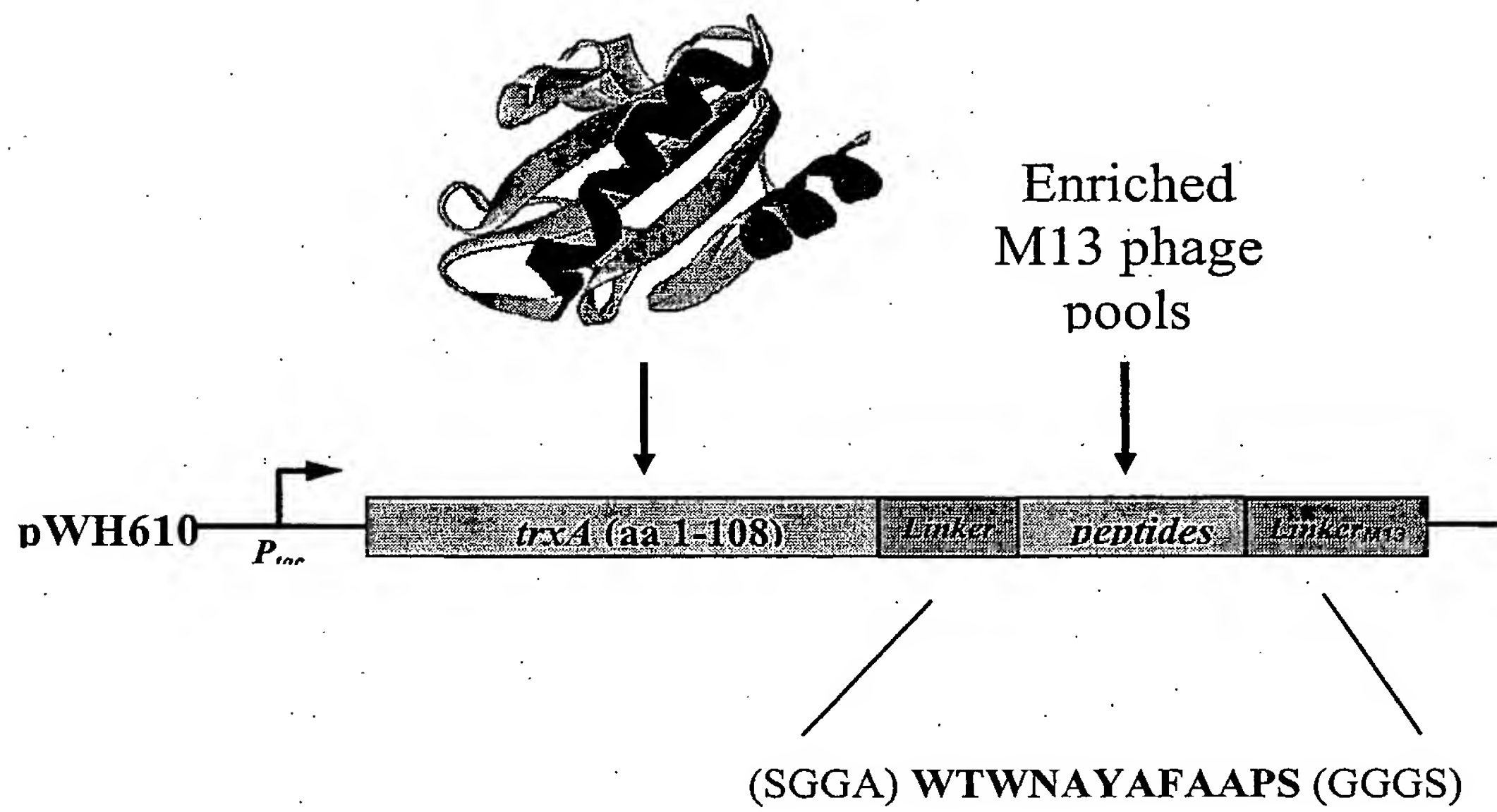
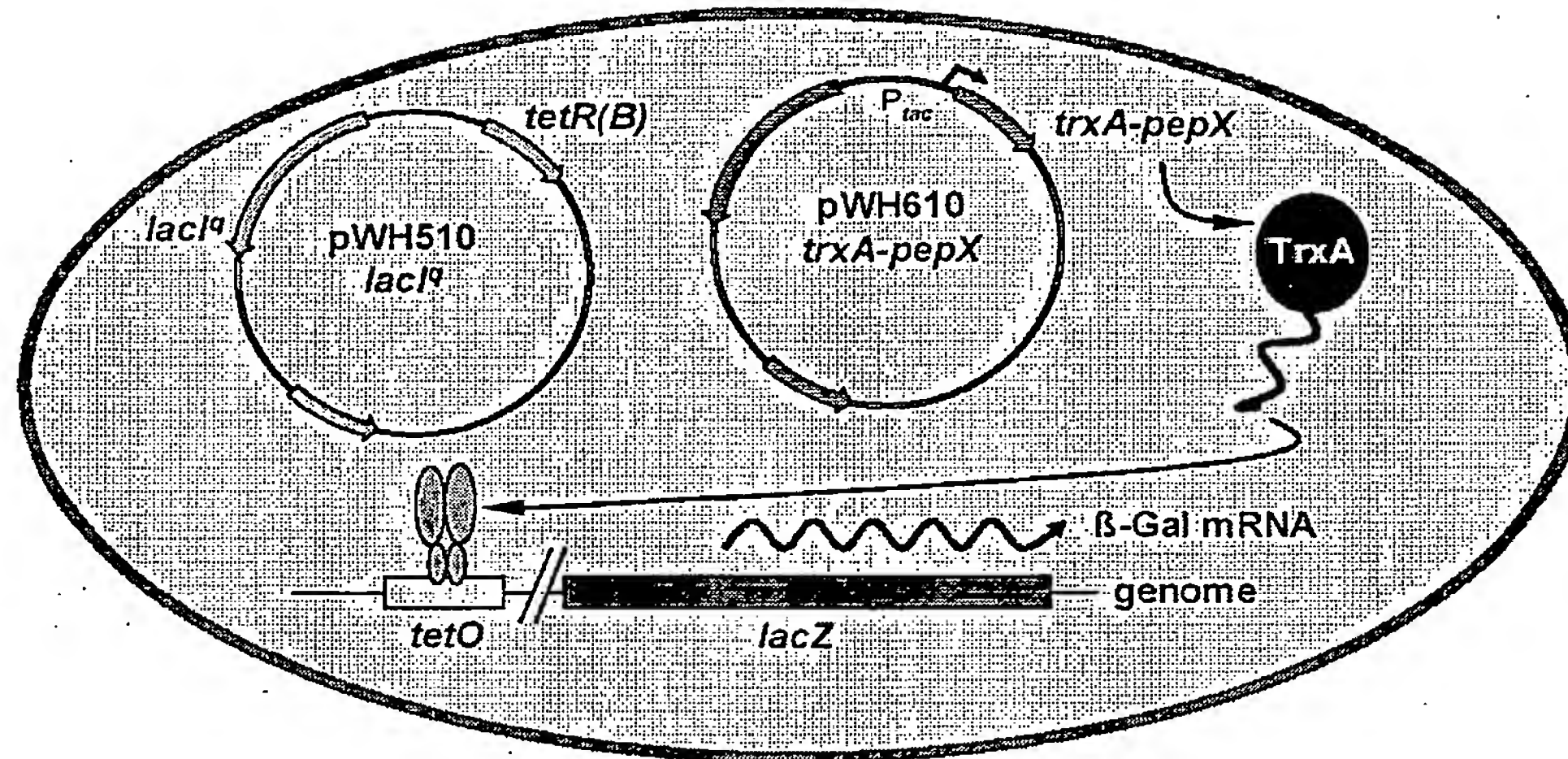


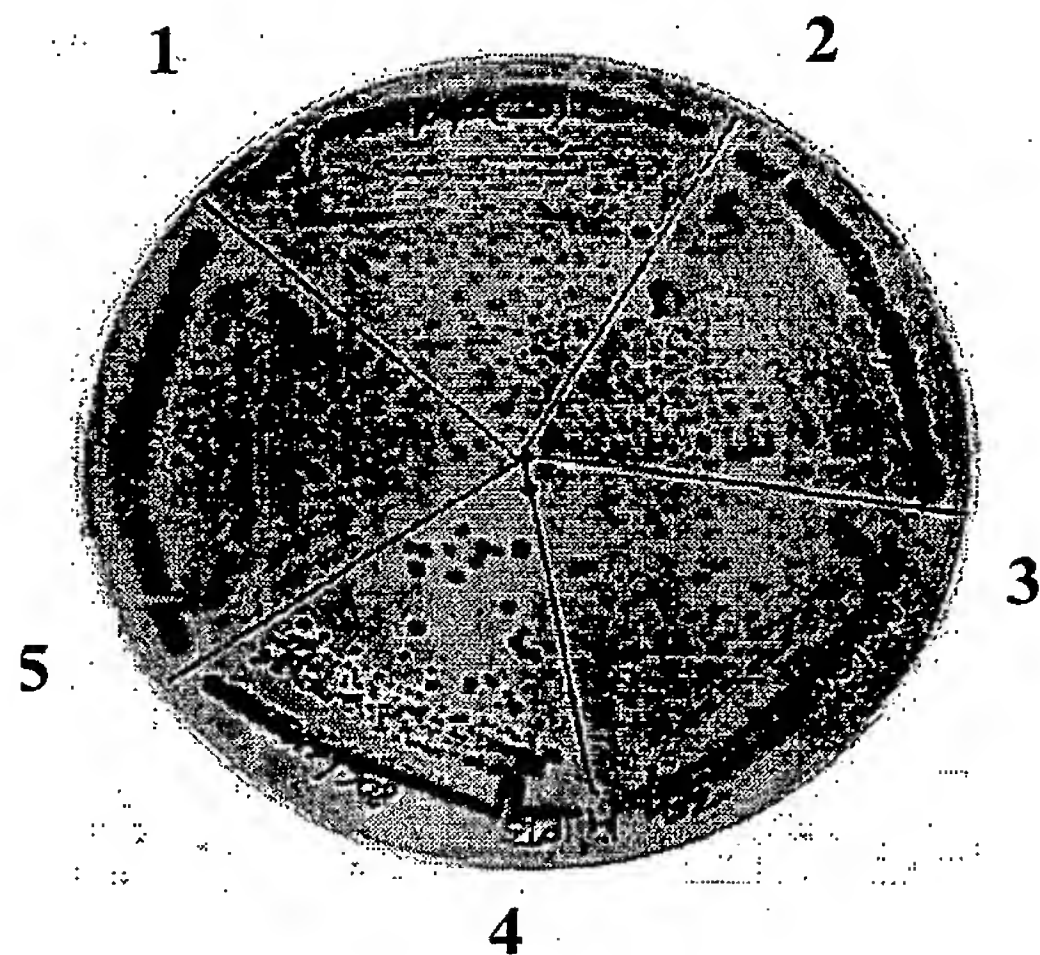
Figure 4: Design of the peptide expressing construct.

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Figure 5: Setup of the *in vivo* screening system.

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Figure 6: McConkey plate.



box	Plasmid I* encoding	Plasmid II** encoding	β -Gal activity
1	TetR(B)	TrxA-pepBs1	+
2	TetR(B)	TrxA-pepBs1	+
3	TetR(B)	-	-
4	-	-	+ (100%)
5	TetR(B)	TrxA	-

* pWH510*lacZ* for TetR(B), pWH1200 (Altschmied et al., 1988)

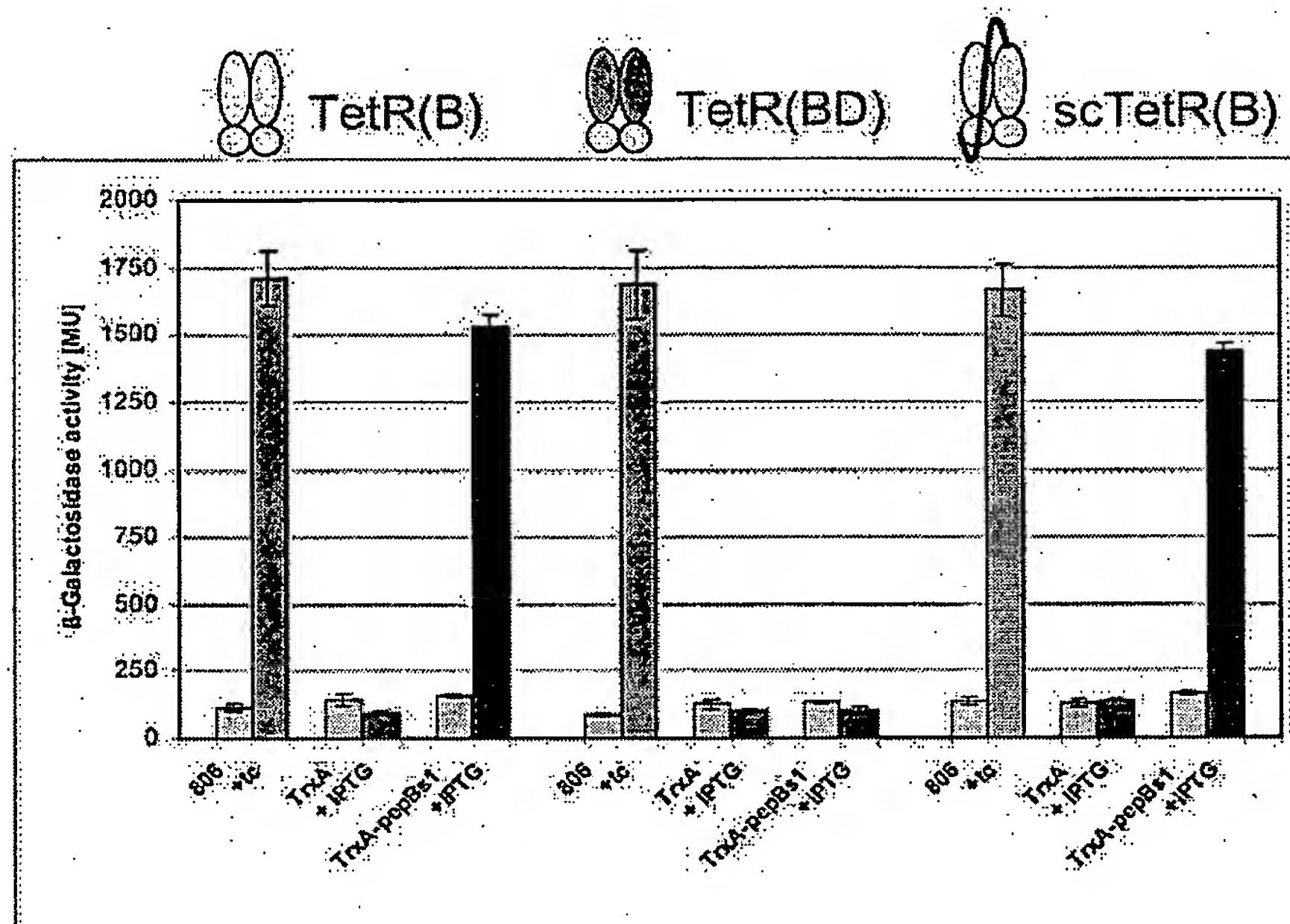
** pWH610 for TrxA/TrxA-pepBs1, pWH806 (Wissmann et al., 1991)

"+" = induced (yellow colonies)

"- " = uninduced (colorless colonies)

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Figure 7: LacZ assay for the TetR-inducing fusion protein TrxA-pepBs1.



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Figure 8: Identification of the region of interaction between TetR and TrxA-pepBs1 by *in vivo* epitope mapping.

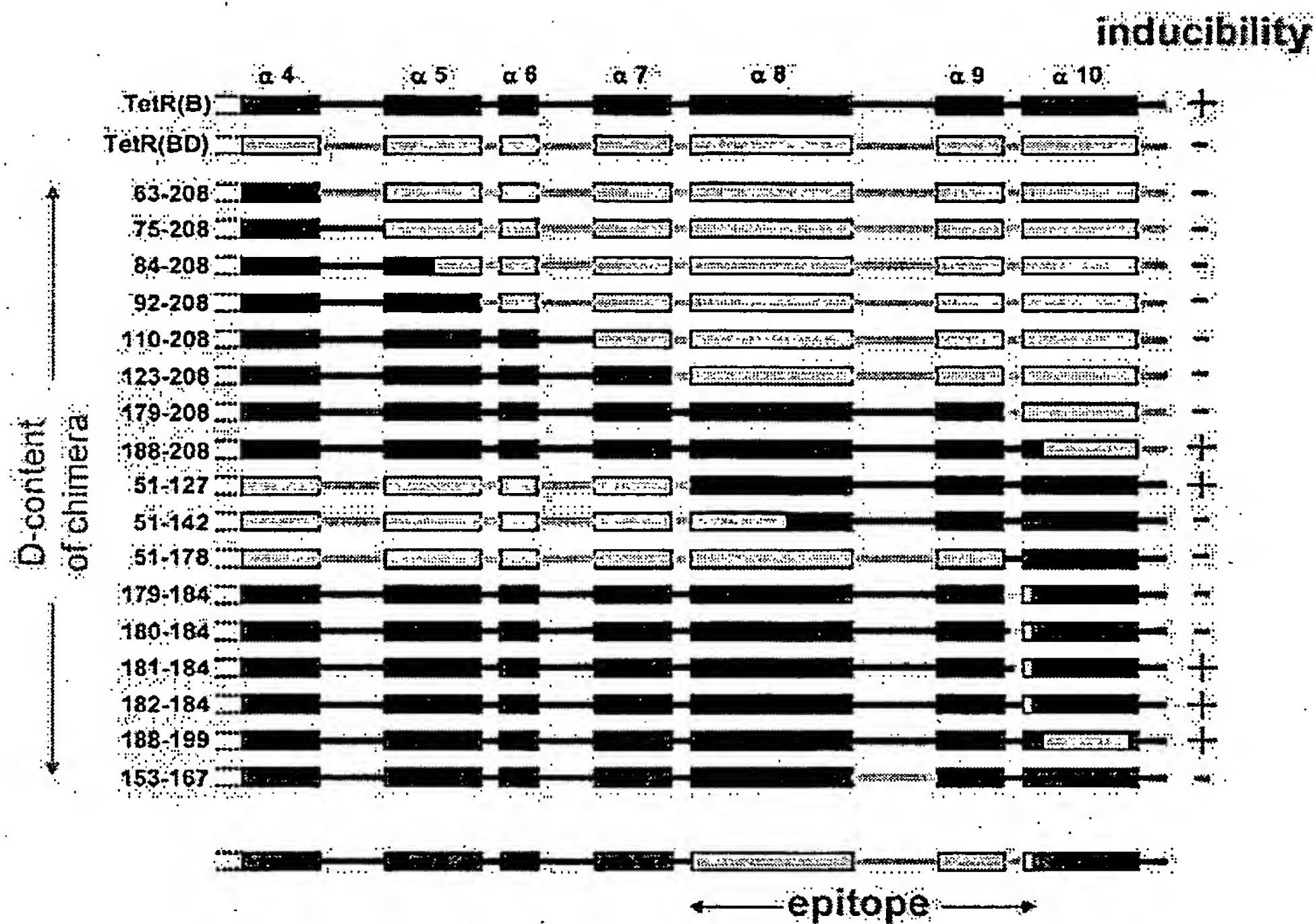
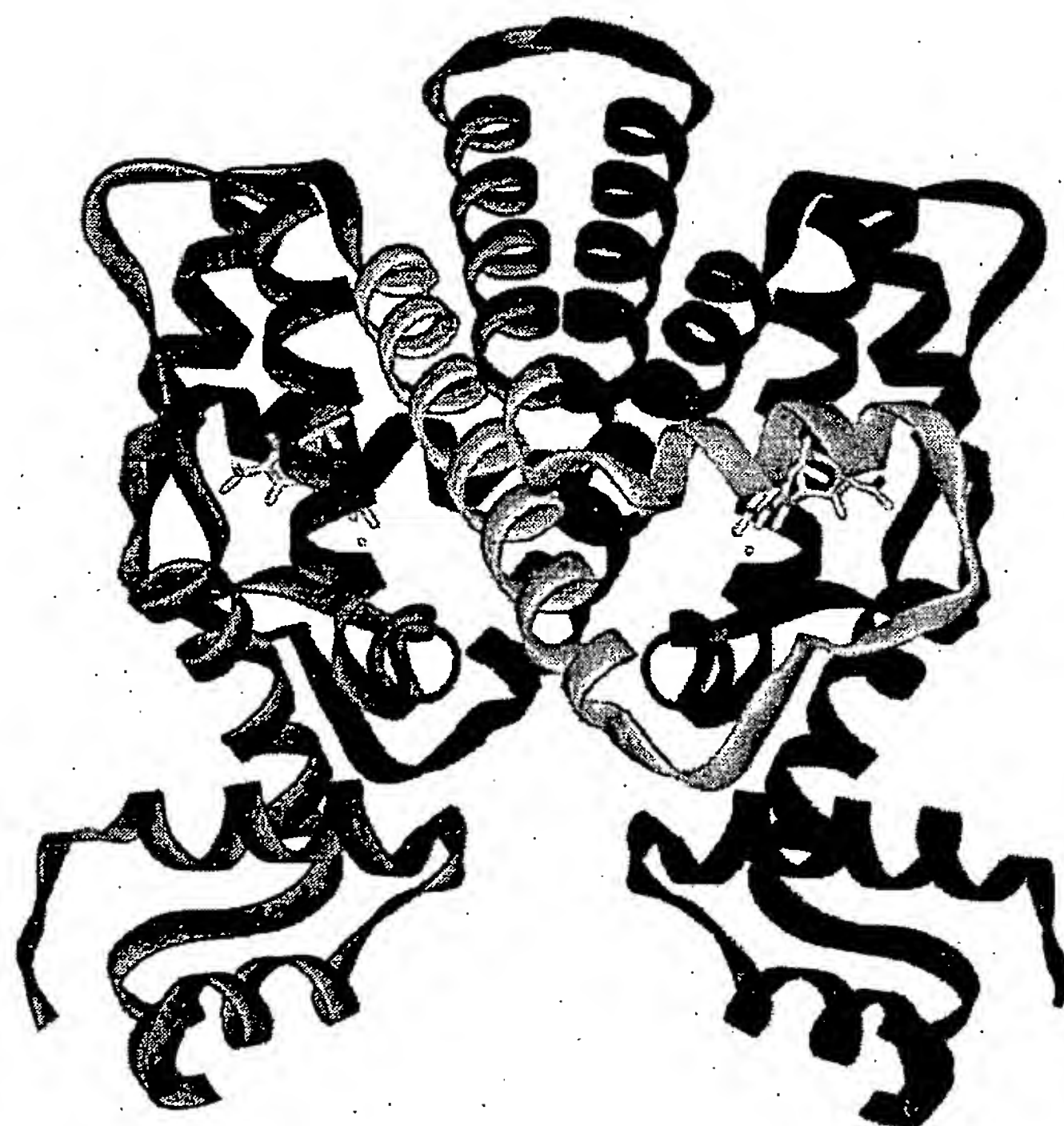


Figure 9: Structure of TetR.



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Figure 10: Expression of the peptide correlates with induction of TetR.

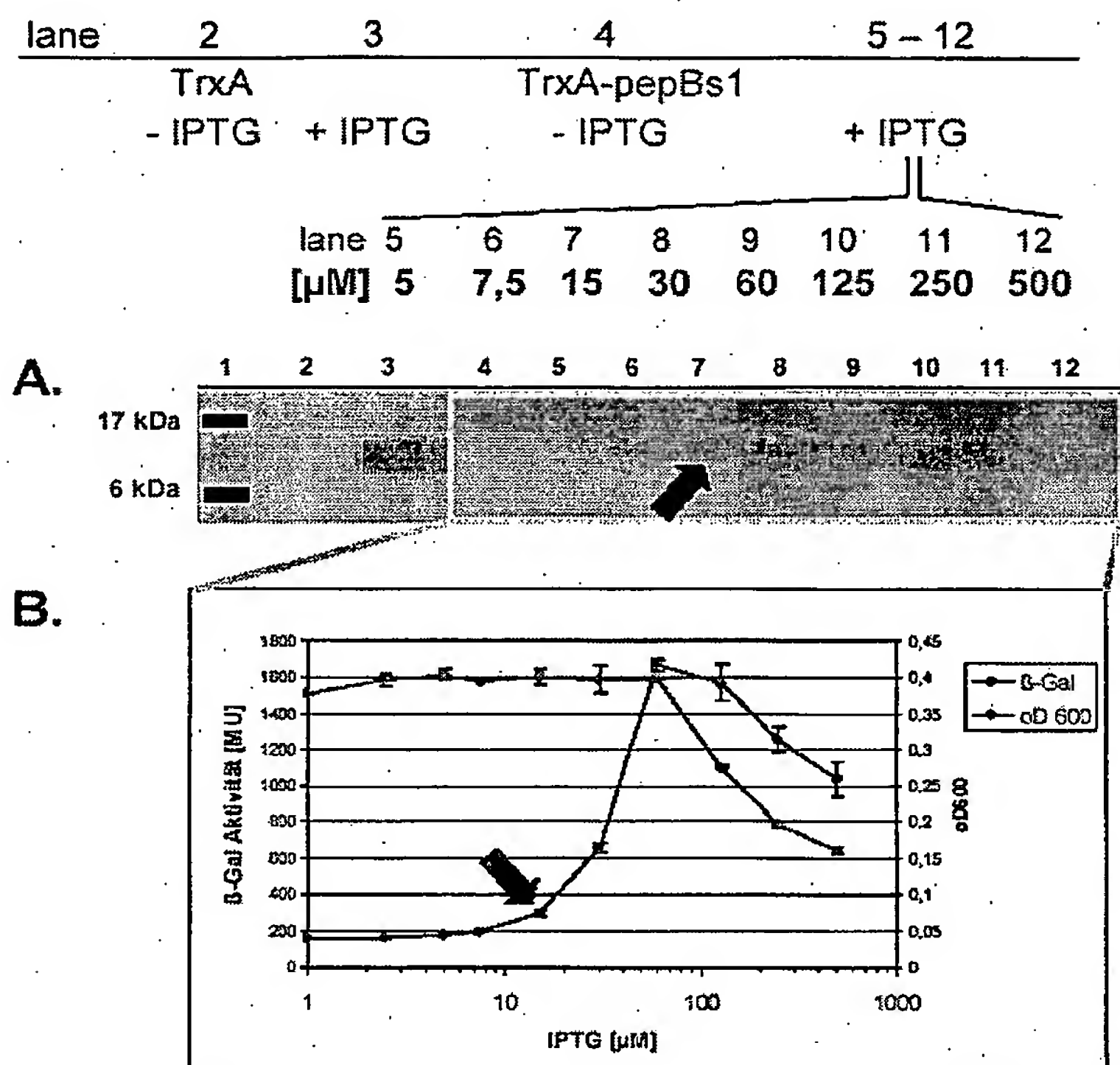


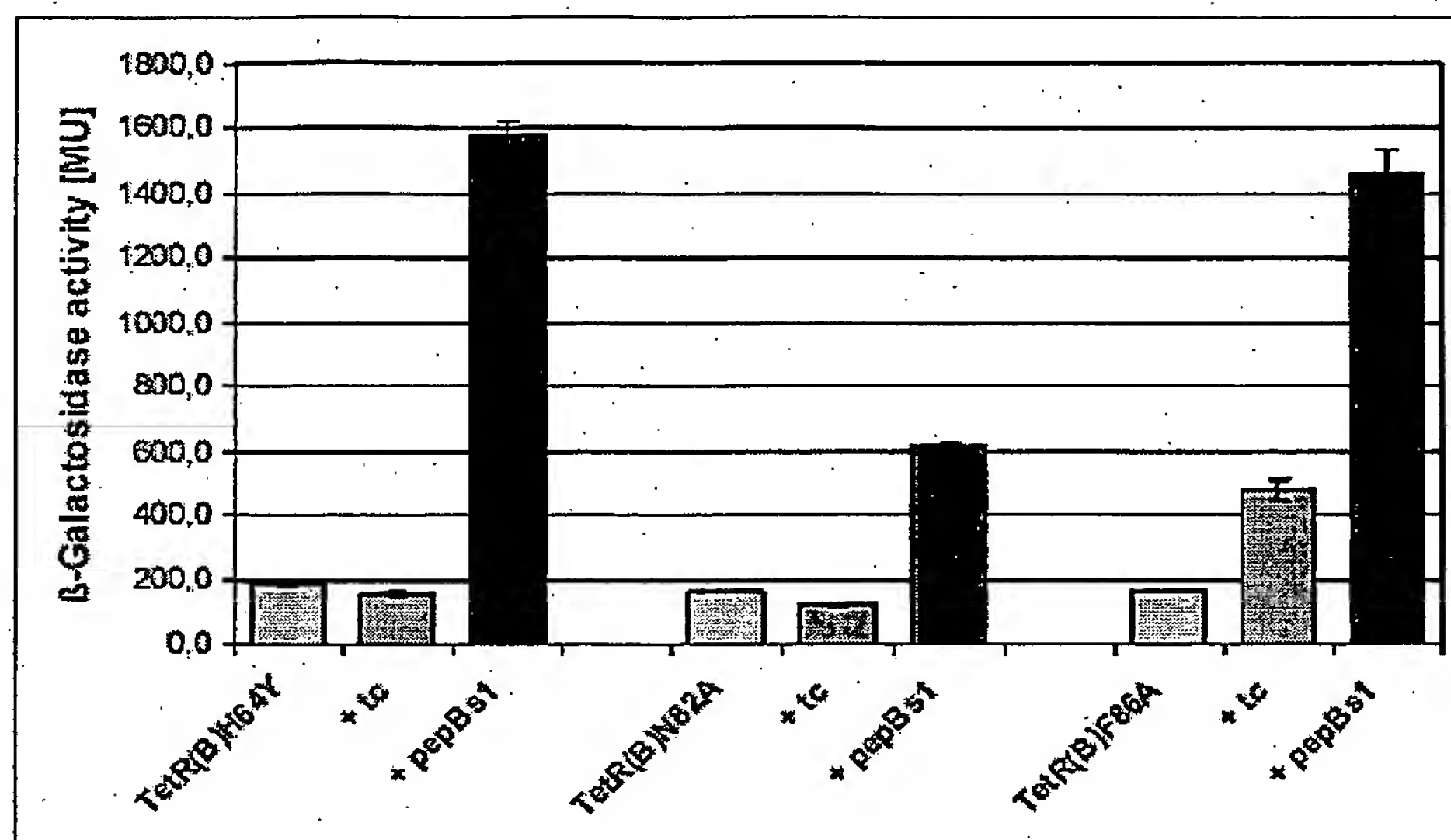
Figure 11: *In vivo* characterisation of non-inducible TetR mutants.

Figure 12: Position of the amino acids H64, N82 and F86 relative to tetracycline and the interaction epitope.

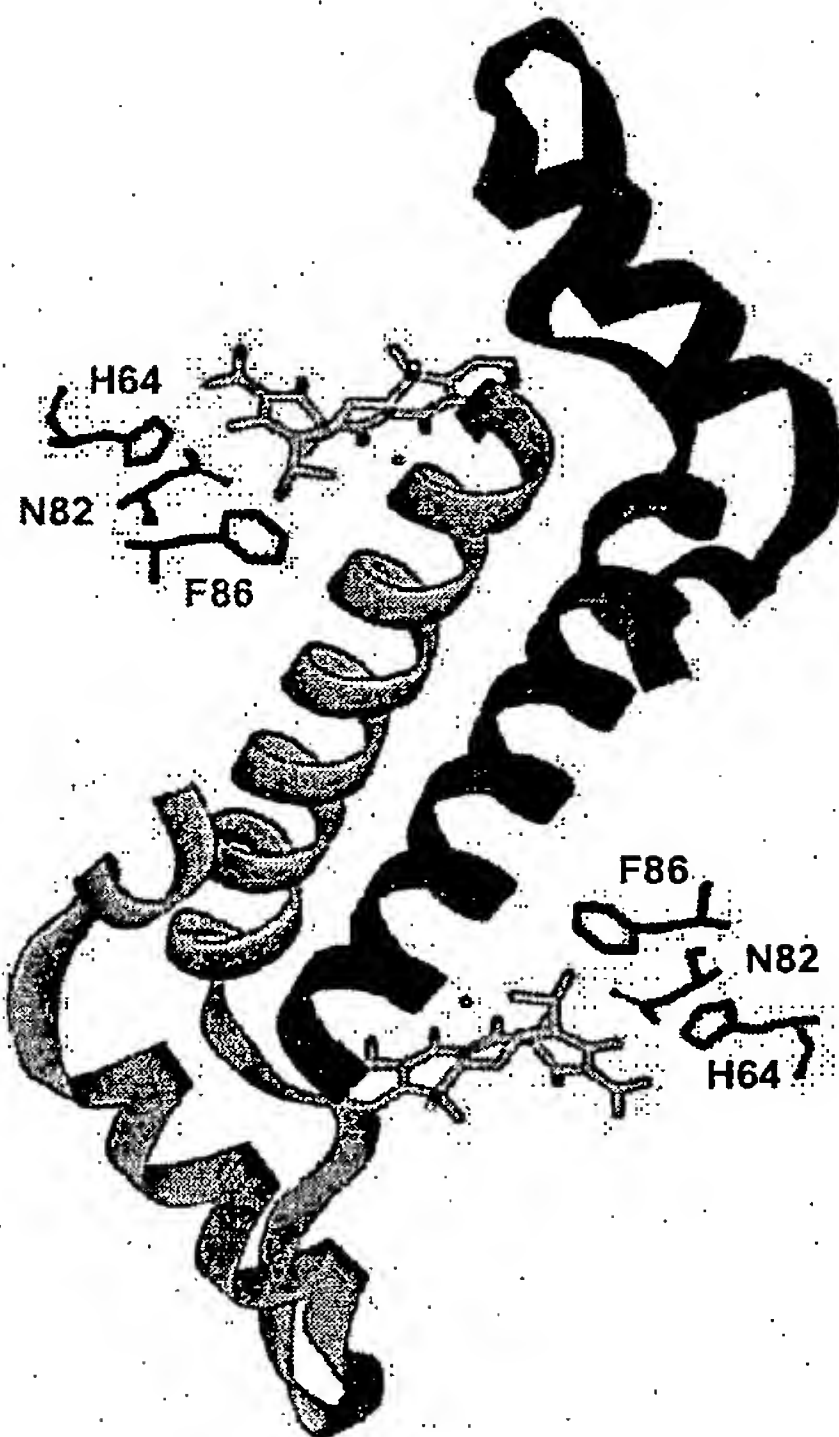
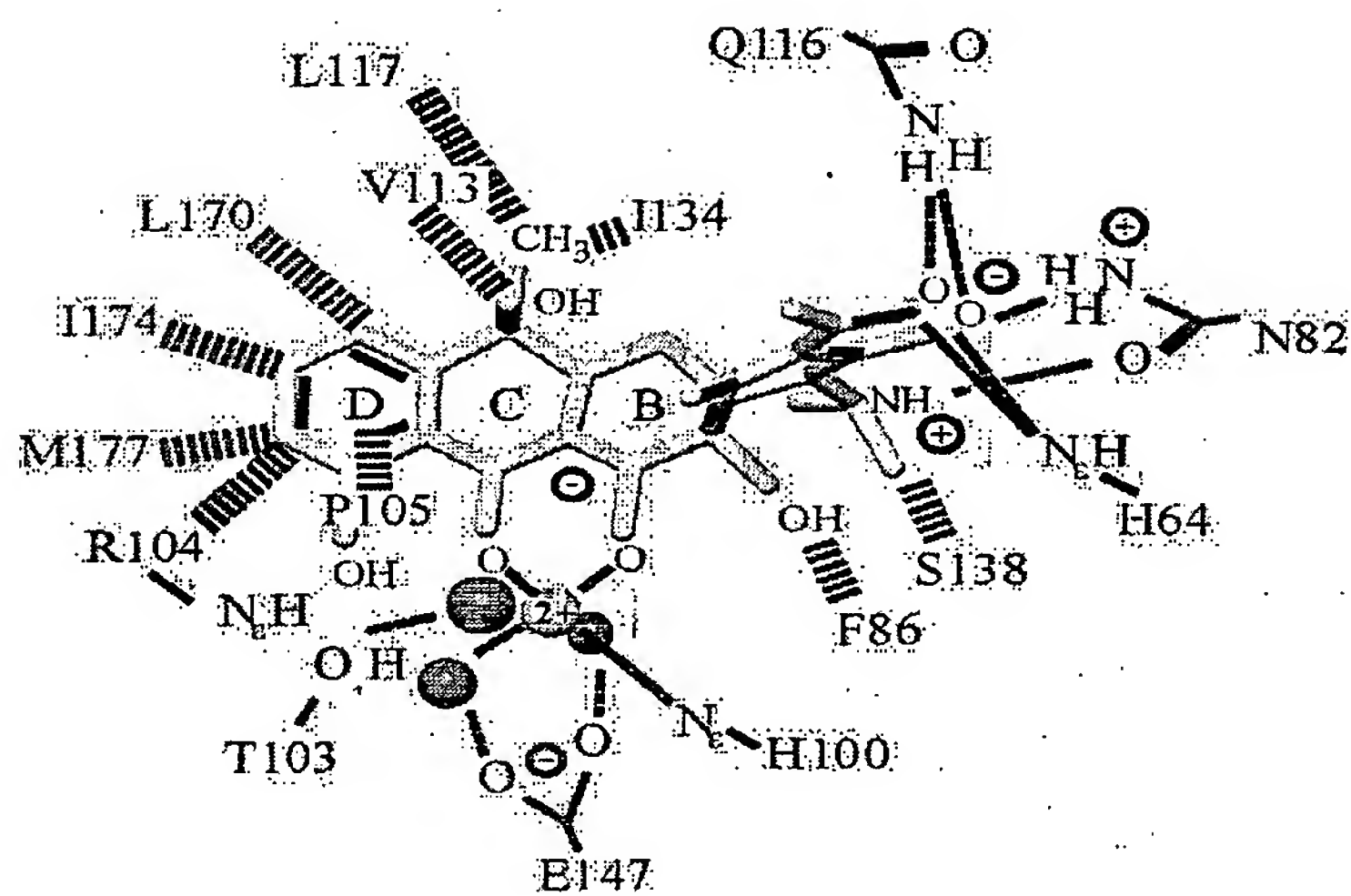


Figure 13: Amino acids contacting tc.



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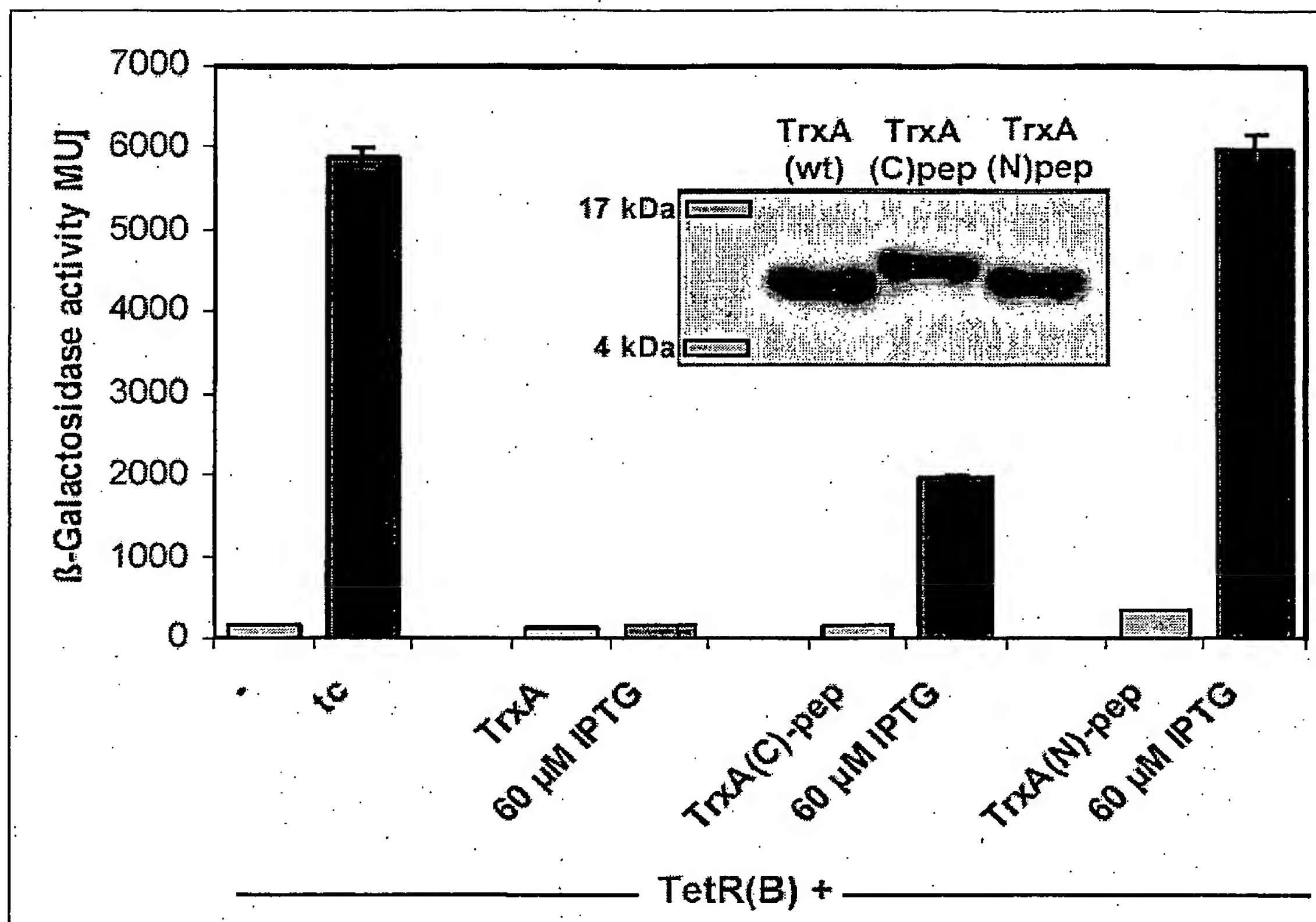
Figure 14: *In vivo* characterisation of TetR inducibility by TrxA fusion proteins.

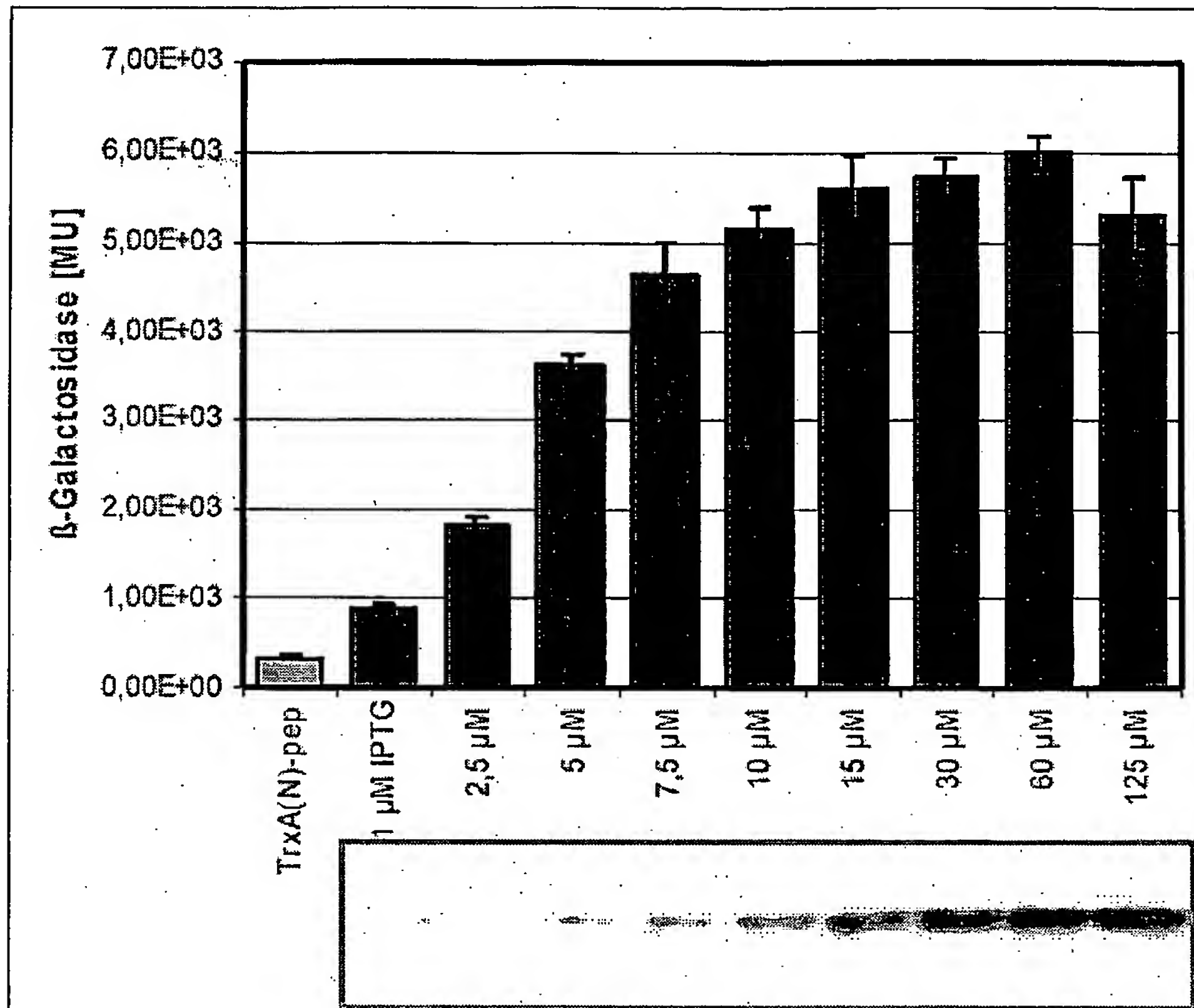
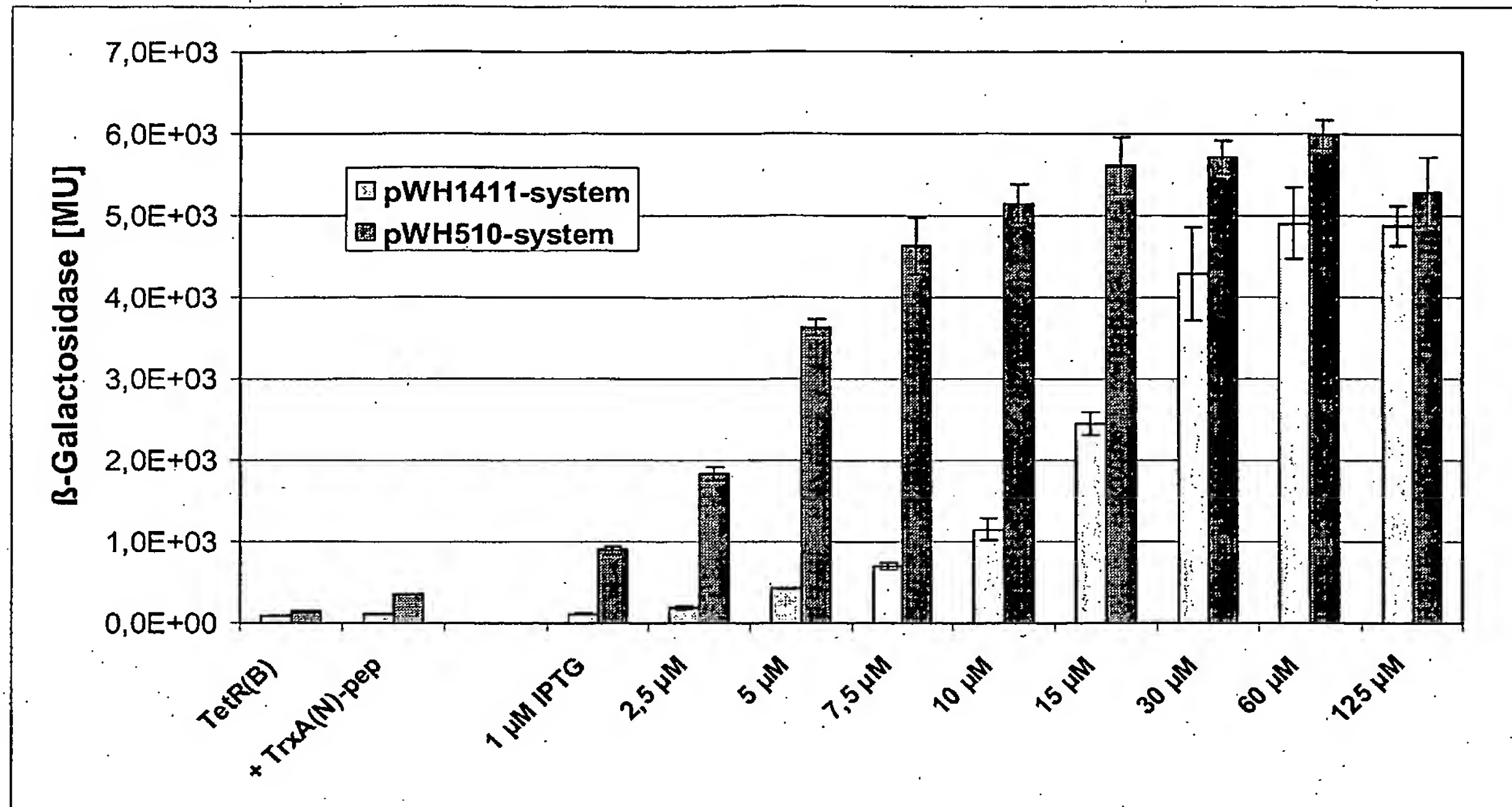
Figure 15: Correlation between the protein level and induction of TetR(B).

Figure 16: Comparison of a low and high TetR-expressing system.

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Figure 17: Comparison of TetR(B) induction by C- and N-terminal TrxA-peptide fusions.

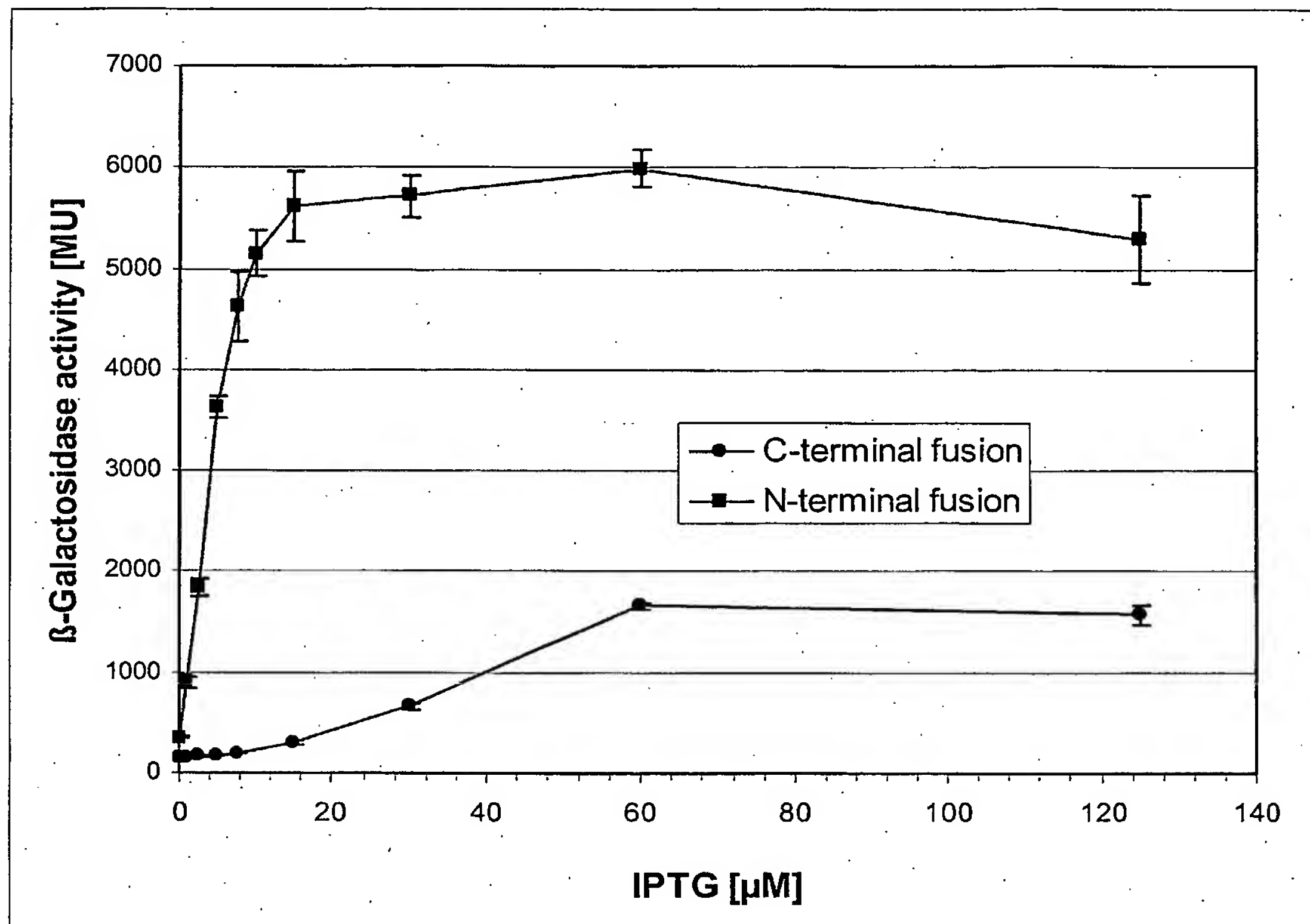


Figure 18: LacZ assay for the TetR-inducing fusion protein SbmC-pepBs1.

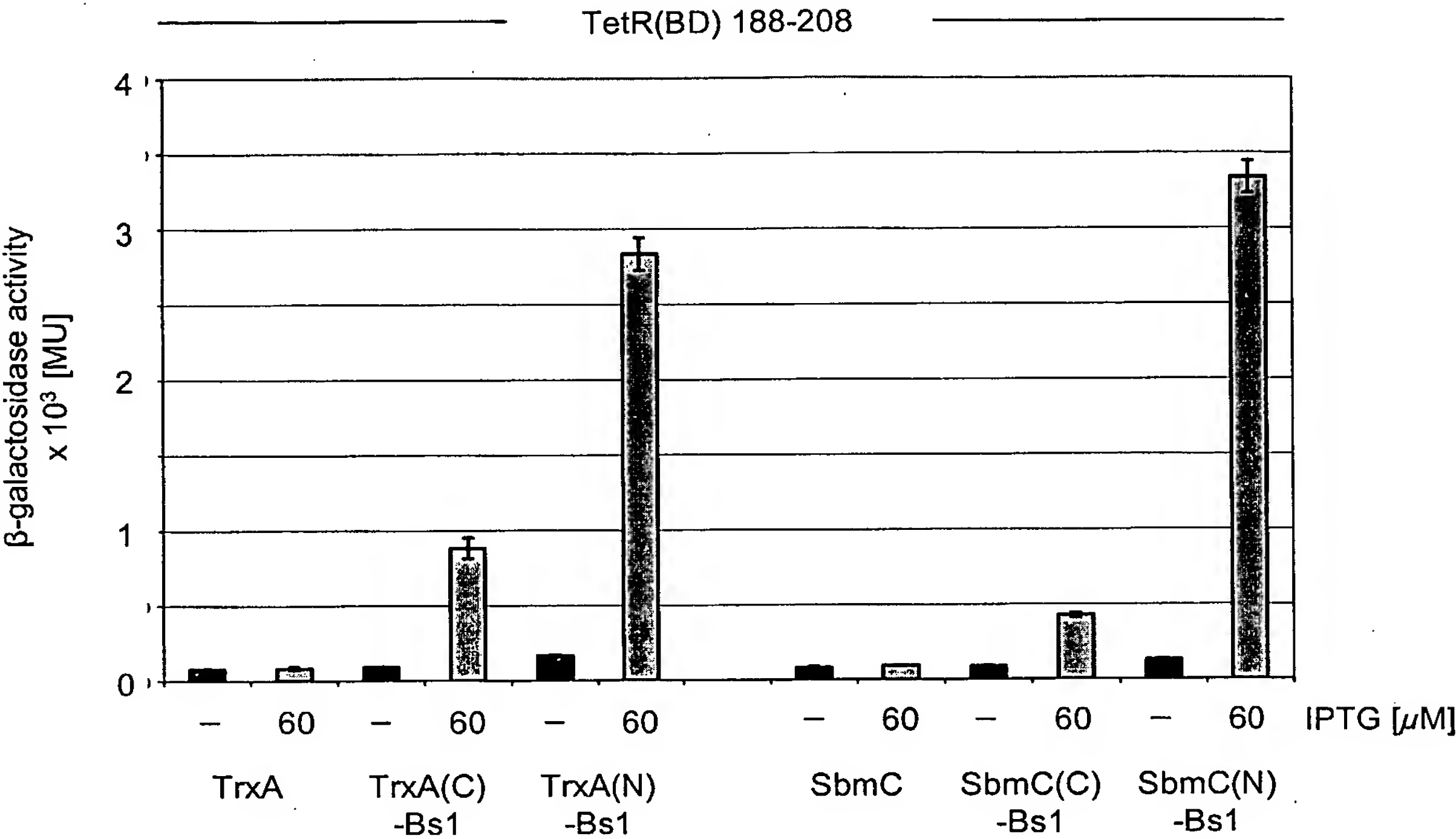


Figure 19: An in-frame fusion of an insertion element (IE^{FKS}) encoding the peptide Bs1 to TrxA leads to a protein that induces TetR(B).

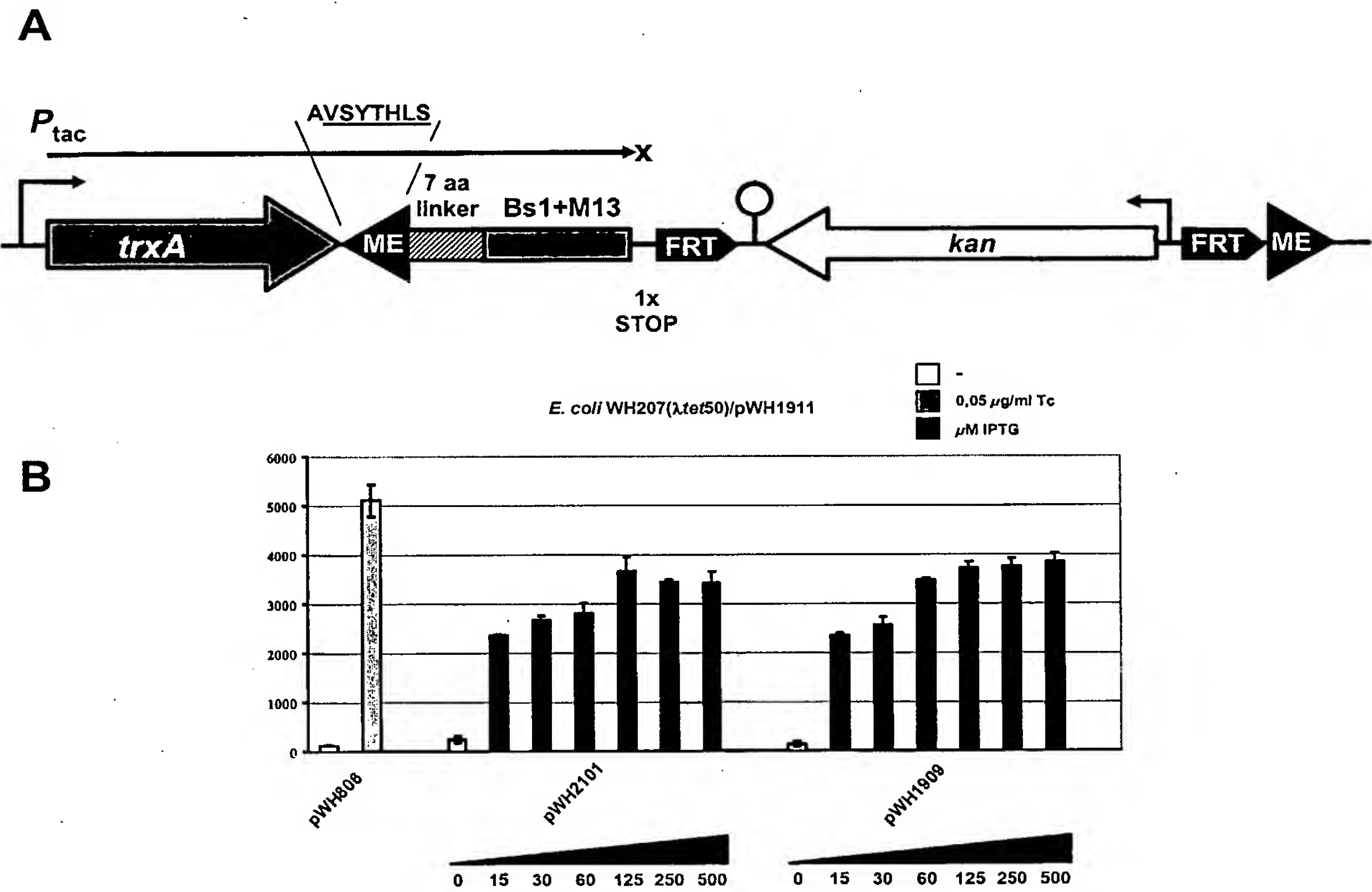


Figure 20: An in-frame fusion of the insertion element IE^{FSK} to the *atpD* ORF at its endogenous location in the *E. coli* genome leads to a protein that induces TetR(B).

